

CLAIMS:

1. A wireless communication system comprising:
an interrogator including:

a housing including circuitry configured to generate a
forward link communication signal;

communication circuitry configured to communicate the
forward link communication signal; and

a communication station remotely located with respect to the
housing and configured to receive the forward link communication signal
from the communication circuitry and to radiate a forward link wireless
signal corresponding to the forward link communication signal; and

a remote communication device configured to receive the forward
link wireless signal.

2. The wireless communication system according to claim 1
further comprising a driver amplifier coupled with the circuitry and
configured to increase the power of the forward link communication
signal and to apply the forward link communication signal to an input
of the communication circuitry.

3. The wireless communication system according to claim 1 wherein the communication station includes adjustment circuitry configured to receive the forward link communication signal from the communication circuitry and to adjust an electrical characteristic of the forward link communication signal.

4. The wireless communication system according to claim 3 wherein the adjustment circuitry comprises automatic gain control circuitry.

5. The wireless communication system according to claim 4 wherein the automatic gain control circuitry is configured to monitor the power of the forward link communication signal and adjust the power of the forward link communication signal responsive to the monitoring.

6. The wireless communication system according to claim 1 wherein the communication station includes a power amplifier configured to receive the forward link communication signal from the communication circuitry and to amplify the forward link communication signal.

7. The wireless communication system according to claim 1 wherein the communication station includes an antenna configured to receive the forward link communication signal from the power amplifier and to radiate the forward link wireless signal.

8. The wireless communication system according to claim 1 wherein the remote communication device includes a radio frequency identification device.

9. The wireless communication system according to claim 1 wherein the communication circuitry includes a coaxial RF cable.

10. The wireless communication system according to claim 1 wherein the communication circuitry includes a plurality of transceivers individually coupled with one of the housing and the communication station.

1 Sub 11. An interrogator of a wireless communication system
2 B2 comprising:

3 a housing including circuitry configured to generate a forward link
4 communication signal;

5 communication circuitry outside of the housing and coupled with
6 the circuitry and configured to communicate the forward link
7 communication signal; and

8 a communication station remotely located with respect to the
9 housing and including an antenna coupled with the communication
10 circuitry and configured to radiate a forward link wireless signal
11 corresponding to the forward link communication signal.

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13 12. The interrogator according to claim 11 further comprising a
14 driver amplifier coupled with the circuitry and configured to increase the
15 power of the forward link communication signal and to apply the
16 forward link communication signal to an input of the communication
17 circuitry.

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19 13. The interrogator according to claim 11 wherein the
20 communication station includes adjustment circuitry configured to receive
21 the forward link communication signal from the communication circuitry
22 and to adjust at least one electrical characteristic of the forward link
23 communication signal.
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14. The interrogator according to claim 11 wherein the adjustment circuitry comprises automatic gain control circuitry.

15. The interrogator according to claim 14 wherein the automatic gain control circuitry is configured to monitor the power of the forward link communication signal and adjust the power of the forward link communication signal responsive to the monitoring.

16. The interrogator according to claim 11 wherein the communication station includes a power amplifier configured to receive the forward link communication signal from the communication circuitry and to amplify the forward link communication signal.

17. The interrogator according to claim 11 wherein the communication station includes an antenna configured to receive the forward link communication signal from the power amplifier and to radiate the forward link wireless signal.

18. The interrogator according to claim 11 wherein the remote communication device comprises a radio frequency identification device.

19. The interrogator according to claim 11 wherein the communication circuitry includes a coaxial RF cable.

1 20. The wireless communication system according to claim 11
2 wherein the communication circuitry includes a plurality of transceivers
3 individually coupled with one of the housing and the communication
4 station.

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6 Sub 21. An interrogator of a wireless communication system
7 comprising:

8 a housing including circuitry configured to generate a plurality of
9 forward link communication signals; and

10 a plurality of communication stations remotely located with respect
11 to the housing and individually configured to receive at least one of the
12 forward link communication signals from the housing and radiate a
13 forward link wireless signal corresponding to the at least one forward
14 link communication signal.

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16 22. The interrogator according to claim 21 wherein the
17 communication stations individually include adjustment circuitry configured
18 to receive the at least one forward link communication signal and to
19 adjust at least one electrical characteristic of the forward link
20 communication signal.

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22 23. The interrogator according to claim 22 wherein the
23 adjustment circuitry includes automatic gain control circuitry.
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1 24. The interrogator according to claim 21 further comprising a
2 plurality of communication circuits individually configured to communicate
3 at least one forward link communication signal intermediate the housing
4 and one of the communication stations.

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6 25. The interrogator according to claim 21 wherein the
7 communication stations are individually positioned to radiate the forward
8 link wireless signal within one of a plurality of communication ranges.
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1 26. An interrogator of a radio frequency identification system
2 comprising:

3 a housing including:

4 circuitry configured to generate a forward link communication
5 signal; and

6 a driver amplifier coupled with the circuitry and configured
7 to increase the power of the forward link communication signal;

8 a coaxial RF cable outside of the housing and coupled with the
9 driver amplifier and configured to communicate the forward link
10 communication signal; and

11 a communication station remotely located with respect to the
12 housing and including:

13 automatic gain control circuitry coupled with the coaxial RF
14 cable and configured to monitor the power of the forward link
15 communication signal, compare the power with a predetermined threshold
16 value, and adjust the power of the forward link communication signal
17 responsive to the comparison;

18 a power amplifier coupled with the automatic gain control
19 circuitry and configured to increase the power of the forward link
20 communication signal; and

21 an antenna coupled with the power amplifier and configured
22 to radiate a forward link wireless signal corresponding to the forward
23 link communication signal.
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1 27. A method of communicating within a wireless communication
2 system comprising:

3 providing an interrogator and at least one remote communication
4 device;

5 generating a forward link communication signal using circuitry
6 within a housing of the interrogator;

7 communicating the forward link communication signal from the
8 housing using communication circuitry;

9 receiving the forward link communication signal from the
10 communication circuitry within a communication station of the
11 interrogator remotely located from the housing;

12 radiating a forward link wireless signal corresponding to the
13 forward link communication signal using the communication station; and

14 receiving the forward link wireless signal within the at least one
15 remote communication device.

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17 28. The method according to claim 27 further comprising
18 amplifying the forward link communication signal before the
19 communicating.

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21 29. The method according to claim 27 further comprising
22 adjusting at least one electrical characteristic of the forward link
23 communication signal before the radiating.
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1 35. A method of communicating within a wireless communication
2 system comprising:

3 providing an interrogator having a housing and at least one
4 communication station remotely located from the housing;

5 generating a forward link communication signal using circuitry
6 within the housing;

7 communicating the forward link communication signal from the
8 housing using communication circuitry;

9 receiving the forward link communication signal from the
10 communication circuitry within the communication station; and

11 radiating a forward link wireless signal corresponding to the
12 forward link communication signal using the communication station.

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14 36. The method according to claim 35 further comprising
15 amplifying the forward link communication signal before the
16 communicating.

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18 37. The method according to claim 35 further comprising
19 adjusting at least one electrical characteristic of the forward link
20 communication signal before the radiating.

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22 38. The method according to claim 37 wherein the adjusting
23 includes adjusting using automatic gain control circuitry.

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39. The method according to claim 37 wherein the adjusting includes:

monitoring the power of the forward link communication signal within the communication station; and

adjusting the power of the forward link communication signal responsive to the monitoring.

40. The method according to claim 39 wherein the monitoring includes:

adjusting a threshold value corresponding to a distance intermediate the housing and the communication station; and

comparing the power of the forward link communication signal received from the communication circuitry with the threshold value.

41. The method according to claim 35 further comprising amplifying the forward link communication signal within the communication station before the radiating.

42. The method according to claim 35 wherein the providing comprises providing a plurality of communication stations remotely located from the housing, and the communication stations are individually positioned to transmit a forward link wireless signal within one of a plurality of communication ranges.